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## NSR Requirements in PM<sub>10</sub> Maintenance Areas

### PRELIMINARY DRAFT

#### For Stakeholder Review

The State of Utah is in the process of developing a PM<sub>10</sub> maintenance plan for Utah County, Salt Lake County and Ogden City. When the plan is completed, the State will request that EPA redesignate these areas to attainment for PM<sub>10</sub>. These areas have been meeting the national ambient air quality standard (NAAQS) for PM<sub>10</sub> since 1995 due to the significant emission reductions that were required by the PM<sub>10</sub> State Implementation Plan (SIP) during the mid-1990s.

An attainment designation will formally recognize the air quality improvement that has occurred in these areas. However, it is important to look to the future and ensure that the improvements from the PM<sub>10</sub> SIP are not eroded over time due to the growth of new sources. Even more importantly, the entire Wasatch Front is borderline attainment for the new PM<sub>2.5</sub> NAAQS. The primary mechanism that is used to address growth from stationary sources is Utah's permitting program. UDAQ has been evaluating the best way to implement this program to ensure that air quality does not degrade in the new PM<sub>10</sub> maintenance areas.

When the current PM<sub>10</sub> nonattainment areas in Utah are redesignated to attainment, the Prevention of Significant Deterioration (PSD) permitting program in R307-405 will become applicable in the new maintenance areas. New major sources or major modifications will need to perform modeling to ensure that PM<sub>10</sub> levels do not deteriorate more than a set amount (called increment) and also to ensure that the new source will not cause a violation of the PM<sub>10</sub> NAAQS. Minor sources and modifications will also need to do air quality modeling as outlined in R307-410 to ensure that the NAAQS for PM<sub>10</sub> and PM<sub>2.5</sub> are not exceeded. Utah's core permitting program in R307-401 will continue to require that all new and modified sources use the best available control technology (BACT).

When Salt Lake and Davis Counties were redesignated to attainment for ozone, the PSD program was implemented in the former nonattainment areas. One of the challenges that Utah faced during this transition was the lack of good permitting models to determine the impact on ozone levels. Ozone is not emitted directly, but is instead formed through a series of complex photochemical reactions from volatile organic compounds and nitrogen oxides. Photochemical models have been developed to simulate this process, but these models are complex and difficult to run. It is not practical to use these types of models for day-to-day permitting decisions. Instead, these models are used primarily for long-term planning, such as the development of a new SIP. The ozone maintenance plan addressed this permitting difficulty by retaining the offset provisions from the Nonattainment NSR permitting rule, R307-403, when the area was redesignated to attainment. Even though the impact of a new source could not be modeled directly, the offsets would ensure that emissions of the precursors in the area would not increase due

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to the construction of the new source.

A portion of the particulate matter (PM) measured in Utah is directly emitted as particles (such as dust and soot,) and these direct emissions can be modeled to determine nearby impact. During winter temperature inversions, however, a significant portion of the PM is formed from gases (nitrogen oxides and sulfur dioxide). The secondary formation of PM becomes an even larger part of the overall problem when you look at fine particles (PM<sub>2.5</sub>). As with ozone, the chemistry driving the formation of PM during winter temperature inversions is complex, and complex modeling is required to simulate this process. It is not practical to use these complex models for day-to-day permitting decisions, and so the effects of an increase in NO<sub>x</sub> or SO<sub>2</sub> on overall PM<sub>10</sub> levels during the winter may not be adequately evaluated through the PSD permitting process. Another mechanism is needed to manage the growth of NO<sub>x</sub> or SO<sub>2</sub> sources in the new PM<sub>10</sub> maintenance areas.

The Nonattainment NSR permitting rule, R307-403, applies to the current PM<sub>10</sub> nonattainment areas. This rule requires a source to offset an increase of PM<sub>10</sub>, NO<sub>x</sub> or SO<sub>2</sub> by decreasing emissions from another source in the nonattainment area. The PM<sub>10</sub> offset provisions have been effective, and have proved workable for industry in the area. These provisions have prevented a significant increase in emissions from new sources, including minor sources, while still allowing new source growth in the area. As demand increases for "emission reduction credits" an incentive is created for existing sources to decrease their emissions and then sell the credits to a new source that needs an emission offset.

Utah is just meeting the new PM<sub>2.5</sub> standard, and any emission growth could result in a new nonattainment designation. The offset program is a straightforward mechanism to allow growth without degrading air quality.

### **Recommendations:**

1. The PM<sub>10</sub> offset provisions of R307-403-5 should be moved to a new rule, R307-421 to keep these provisions in place when Salt Lake County and Utah County are redesignated to attainment for PM<sub>10</sub>. This rule change will maintain the current program that has been very effective to address emissions growth in the area. This approach would be similar to what was done in the ozone maintenance plan.
2. There may not be enough stationary sources in Ogden City to create a viable market for emission offsets in that area. Two options are under consideration. Ogden City could be left out of the program because stationary sources are not a significant portion of the inventory in that area. Alternatively, the program could be expanded to include all of Weber County and Davis County. An expansion of the current program would be consistent with the findings of the maintenance plan modeling. Emissions from the entire urban area along the Wasatch Front are contributing to PM<sub>10</sub> and PM<sub>2.5</sub> levels during winter temperature inversions.

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3. The applicability thresholds in the current rule should be modified so that new or modified sources with 25 tons/year or greater emissions of SO<sub>2</sub> or NO<sub>x</sub> would need to obtain offsets, with no interpollutant trading. The maintenance plan modeling does not provide the level of analysis that would be needed to establish trading ratios between pollutants. Primary PM<sub>10</sub> emissions can be modeled for nearby impacts and so emission offsets do not need to be maintained for this pollutant.
4. The new rule, R307-421, should be kept as a state rule and not submitted to EPA as part of the maintenance plan. This will allow greater flexibility for implementing the rule, and should not affect the approvability of the maintenance plan because the plan does not claim any emission reduction credit for this provision. This would be similar to the approach that was used for the ozone maintenance areas.